

ABSTRACT OF THE DISCLOSURE

The present invention provides a transformer formed from adjacent conducting layers of a multi-layer PCB and at least one additional conducting layer in contact with the PCB. The inventive transformer includes one or more winding turns of a first winding formed by connecting the multiple layers of the multi-layer PCB with conductive vias and one or more winding turns of a second winding formed by connecting one or more other layers of the multi-layer PCB. The additional conducting layer or layers is connected to respective selected one or more of said conducting layers of said PCB. In one embodiment, an additional conducting layer is soldered to a top conducting layer of the PCB, effectively increasing the cross-sectional area of the top winding layer. In another embodiment, an additional conducting layer is separated from a conducting PCB layer formed on the surface thereof by a layer of insulation, permitting the additional conducting layer to form a separate winding turn. The inventive transformer can be surface mounted to a PCB, and can be used in other electromagnetic devices. The windings thus constructed are capable of accepting larger currents with lower resulting temperature increases than windings formed only from PCBs, and are less expensive to manufacture than PCB-only windings.